INDEX TO VOLUME XII.

MARCH TO DECEMBER, 1907, INCLUSIVE.

A

Abuses, Valve 4635
Accidents, Prevention of 4466
Acetylene Mine Lamp, Portable..... 4567
Aerating Water for Transporting Fish.. 4454
Aftercooler, Intercooler and Antecooler. 4495
Air as a Conveyor of Heat and Moisture 4546
Air as an Insulator..... 4617
Air Brake Air Consumption..... 4522
" " Development 4536
Air, Cool for Compression 4398
Air, Flow in Long Tubes..
4409, 4444, 4468, 4501
Air in British Coal Mines 4431
Air, Return 4426
Air, Weighing 4404
Air Compressors, a Month's Output of. 4559
" " Care of 4484
" " Problem of 4676
" " Reciprocating 4565
" " Steam Consumption of 4669
Air Driven Rock Drills a Necessity..... 4558
Air Hammer, a Cheap, Home Made..... 4538
Air Hammer Drill 4488
Air Lift, Cost of Pumping with..... 4488
Air Motor Hoist, Imperial 4554
Air Operated Truck 4499
" " Vise 4632
Air Receiver, Explosion of..... 4518
Air Tight Pipes 4431
Alcohol and Gasoline 4587
" in Switzerland 4682
All Air is Compressed Air 4612
Altitude and Evaporation 4639
Ammonia Compressor, Rider 4563
Ammonia Hoist, Pneumatic 4683
Antecooler, Intercooler and Aftercooler. 4495
Apparatus, Rescue in Mines..... 4431
Artesian Well, Measuring the Flow..... 4406
Asbestos Men's Convention 4405
Ash Conveyor, Pneumatic 4500
Ashocan Dam 4558
Atmospheric Humidity and Bad Steel... 4550
At the Works 4548
Automobile Air Compressor 4641

B

Bad Steel, Atmospheric Humidity and.. 4550
Bar, the Compressed Air..... 4463
Barometer, The 4618
Belmont Tunnel Work 4661
Belts, Conveyor, Cleansing 4524
Blast, a Record 4617
Blast Furnaces, Compressed Air in..... 4667
Blast, Large, at Cherbourg 4683
Blasting, Powder in 4512
Blower, Fan 4651
Bobbinite, the Latest Coal Getting Explosive 4482
Boltholes in Concrete 4501
Brake on Mine Hoist 4617
Breaking Rock on Suez Canal..... 4618
Buoy, the Whistling 4522
Burtonizing Ale, Gypsum for 4631

C

Caisson Disease 4395
Caisson Records, Deepest 4432
Caisson for Shaft Sinking..... 4406
Caisson Work for Paris Subway..... 4655
Capitalists, the, Editorial 4428
Car Cleaning, Compressed Air for..... 4568
Car Cleaning Plant 4432
Care of Air Compressors 4484
Casting Air Compressor Cylinders 4483
Cathedrals and Atmospheric Contamination 4642
Cement, Waterproof 4431
Channelers on Panama Canal 4588
Chattanooga, Return Air Pumping at... 4539
Chimney Failure, a Unique 4674
Clamp Tool, for Wheel Lathe..... 4537
Cleaning and Painting Steel Work..... 4668
Cleaning Conveyor Belts 4524
Coal Cutters, Working Conditions for... 4522
Coal Cutting Machines in Great Britain. 4682
Coal Gas Made Odorless by Earth Filtration 4649
Coal, Metamorphism of 4554
Coal Mines, Air Machines in British.... 4431
Coal Mines, Compressed Air in 4549
Coal Mining, Liquid Air in 4674
Coal Mining, Machines in..... 4406
Coal Mine, for a Training..... 4520
Comparison, High and Low Sand Blast.. 4490
Completing a Year's Work..... 4455
Composition of Industrial Gases..... 4610
Compressions, Useless Two-Stage..... 4498
Compression, Multi-Stage 4430
Compressed Air, All Air is..... 4612
Compressed Air Draft For Heating Rivets 4610
Compressed Air in Belmont Tunnel..... 4661
" " " Blast Furnaces 4667
" " " Cotton Industries... 4518
" " " Iron Foundry..... 4514
" " " Railroad Shops..... 4582
" " " Shipyard 4514
" " " Shops, Installation of 4509
" " for Automobiles 4443
" " " Car Cleaning..... 4568
" " " Refrigeration 4516
" " " Steam Hammers.... 4527
" " " Steam Hammers.... 4612
" " on Panama Canal..... 4455

Compressed Air at Great Depths..... 4483
" " Bar 4463
" " Hammer, a New..... 4497
" " Inexpensive 4467
" " Increasing Use of..... 4491
" " Locomotives 4489
" " Loss in Transmitting.. 4491
" " Its Production and Use 4480
" " New Application of... 4424
" " Pumping Sand by..... 4541
" " Riveter, a New..... 4543
" " to Make Ships Safe.... 4575
Compressive Riveters, Improvements in.. 4574
Compressors, Portable Electric-Driven.. 4406
Compressors, Turbine 4650
Convention of Asbestos Men..... 4405
Concrete, Drilling Boltholes in..... 4501
Conveyor-Belts, Cleaning 4524
Cool Air for Compression..... 4398
Cool Air for Compressors..... 4618
Copper Mining, Rock Drill and Air Compressors in 4606
Copper Production 4543
Cornwall, Rock Drill Inventor in..... 4609
Cosmopolitan Enterprise 4578
Cost of a Small Rock Tunnel..... 4478
Cost of Hand Drilling..... 4650
Cost of Pumping with the Air Lift..... 4488
Cost of Rock Drilling in Swedish Mines. 4607
Cotton Industries, Compressed Air in... 4518
Cotton Picking Machine 4491
Cylinders, Casting Air Compressor..... 4483
Cylinders, Explosions 4454
Cylinders, Lubrication of..... 4430
Counting Rehandled Material Twice.... 4431
Crushing Submerged Rock 4608

D

Deep Shaft 4617
Deepest Caisson Records 4432
Dense Air, Operating Steam Pumps by.. 4599
Depth of Holes, Limit in France..... 4649
Depths, At Great 4483
Development of the Air Brake..... 4536
Development of New Names..... 4580
Development of the Hammer Drill..... 4450
Different Vacuums 4646, 4676
Distribution, Compressed Air 4669
Drill, Air Hammer 4488
Drill, Electric Air 4623
Drill, Gordon, on the Rand..... 4544
Drills, Multiple Arrangement of..... 4629
Drills, Tougher Than Electric..... 4512
Drilling Boltholes in Concrete..... 4501
Drilling Boltholes in Green Concrete.... 4618
Drilling, Hand, Cost of..... 4651
Dust in Mining, Suppression of..... 4534
Dust Mask 4628
Dynamite Used in New York..... 4558

E

Earth Filtering and Odorless Coal Gas.. 4649
Earthquake Register 4486
Economy in Duplex and Compound Compressors 4389
Economy in Duplex and Compound Compressors 4418
Economy, Gaining in Coal Mines..... 4651
Economy, Growing in Compressed Air Practice 4547
Education of Engineers..... 4427
Efficiency Tests of Reavell Compressor.. 4564
Electric Air Drill 4623
Electric Air Drill at Jamestown..... 4581
Electric Air Filtration..... 4652
Electric Drills, Tougher Than..... 4512
Electric Driven Portable Compressors... 4406
Engineering Records, Two..... 4612
Engineering Responsibility 4531
Engineers, Education of..... 4427
Evaporation, Altitude and..... 4639
Everything Pneumatic 4611
Exhaust Pressure on Motor Cars..... 4432
Explosions in Air Cylinders..... 4454
Explosion of Air Receiver..... 4518
Explosion of Mine Locomotive..... 4517
Explosion of Mine Locomotive..... 4614
Explosion of Air Cylinder..... 4650
Explosive, Bobbinite the Latest..... 4482
Explosive, a Cheap and Safe..... 4683

F

Failure, a Unique Chimney..... 4674
Fans, Hot Air for Driving..... 4630
Feather Puller, Vacuum..... 4546
Fish, Aerating Water in Tranportation of 4454
Flow of Air in Long Tubes..4409, 4444, 4458 4501, 4551
Flow of Artesian Well, Measuring..... 4406
Fly-Wheel, Quick Work in a Big..... 4617
Fog Signal 4431
Fog Signal Problem, the..... 4564
Foundation Problems in New York..... 4381
Foundry, Compressed Air in the..... 4514
Free Air Content of Air Receivers..... 4557
Frozen Quicksand, Pit Sinking Through 4609
Fruit Naturally Dried..... 4682
Fuel Oils, Heavy..... 4568

G

Gage, Piping an Air..... 4673
Gaging Drills in Sharpening..... 4491
Gas Distribution, High Pressure..... 4562
Gas Engine, Working of..... 4682
Gas Engines 4651
Gas Engines, Compressed Air for Starting 4642
Gas Engines, Large 4554
Gases, Composition of Industrial..... 4610
Gas Mains, High Pressure..... 4665
Gasoline, Alcohol and 4587
Gives Back All the Change..... 4644
Gordon Drill on the Rand..... 4544
Gordon-Hellman Rock Drill..... 4431
Government Expedition for Science.... 4682
Governor, Pneumatic Oil..... 4572
Gramophones, Compressed Air and in India 4680
Growing Economy in Compressed Air Practice 4547
Gypsum for Burtonizing Ale..... 4631

H

Hammer, Air, a Cheap, Home-Made.... 4538
" Compound Pneumatic 4595
" New Compressed Air..... 4497
" Drill, Development of..... 4450

Hammers, Steam, Compressed Air for.. 4527
Hammers, Steam, Compressed Air for.. 4612
Hardness of Tantalum..... 4587
Heat and Moisture, Air as a Conveyor of 4546
Heating Rivets, Compressed Air Blast for 4610
Heavy Fly-Wheels, Why Used..... 4430
Heavy Fuel Oils 4568
High Pressure Gas Distribution..... 4562
High Pressure Gas Mains..... 4665
High Temperatures 4553
Hoist, Imperial Air Motor..... 4554
Hoist, Novel Brake in a Mine..... 4617
Hot Air for Driving Fans..... 4630

I

Imperial Air Motor Hoist..... 4554
Implosion, Peculiarities of 4660
Improvement in Compressive Riveters.. 4574
Improvement, Information Preceding... 4579
Industries, Cotton, Compressed Air in... 4518
Inexpensive, Compressed Air..... 4467
Information Preceding Improvement.... 4579
Ink Distribution; Pneumatic..... 4532
Installation of Compressed Air in Shops. 4509
Insulator, Air as an..... 4617
Intercooler, Antecooler, Aftercooler, and 4495
Inventor, a Cornwall Rock Drill..... 4609
Irrigation Project 4525
Italians, Free Labor Exchange for..... 4523

J

Jamestown Exposition, Electric Air Drill at 4581
Japanning Machine 4542

K

Kinetic Theory of Gases..... 4634

L

Labor Exchange, for Italians..... 4523
Large Gas Engines..... 4554
Large Monoliths 4617
Large Pumping Engine..... 4558
Lead, Shredded 4487
Life and Work of the Sand Hog..... 4659
Lighthouse, A Yelling..... 4501
Limits to Leases with Compressed Air... 4489
Liquid Air an Explosive in Coal Mining. 4674
Liquid Air in Metallurgy..... 4509
Locomotive Built to Metric Measures... 4521
Locomotive Cylinder Repairing..... 4486
Locomotive, Mine, Explosion of... 4517, 4614
Locomotives, Compressed Air..... 4489
Locomotives, Steam, Supersede Electric.. 4683
Logging Saw, Pneumatic..... 4533
Loss of Mexican Trade..... 4432
Losses in Power Transmission..... 4584
Losses, Limits to, with Compressed Air. 4489
Lubrication of Air Cylinders..... 4430, 4636
Lusitania, Refrigeration on the..... 4660

M

Machine, a Japanning..... 4542
Machinery Ready to Ship..... 4552
Machines in Coal Mining.....4406, 4533
Mackellorite and Stranleighite Energy.. 4628
Manufactures, Power Used in..... 4644
Mask, Dust 4628
Massage Machine, A Pneumatic..... 4553
Mechanic Priest, A..... 4632
Metamorphism of Coal..... 4554
Metallurgy, Liquid Air in..... 4509
Metric Measures, Locomotives Built to.. 4521
Mexican Trade, Loss of..... 4432
Micrometrics, Pneumatic 4677
Mine Lamp, A Portable Acetylene..... 4567
Mine and Tunnel Ventilation..... 4532
Mines, Rescue Work in..... 4430
Minidoka Irrigation Project..... 4523
Modern American Lathe Practice..... 4429
Moisture, Heat and, Air as a Conveyor of 4546
Month's Output of Air Compressors, A.. 4559
Motor Cars, Exhaust Pressure on..... 4432
Motorman, Whitewashing a..... 4587
Monoliths, Large 4617
Multiple Arrangement of Drills..... 4629
Multi-stage Compression 4430

N

New Books 4429, 4680
New Compressed Air Hammer..... 4497
New Names, Development of..... 4580
Non-Freezing Powder..... 4521
Non-Return Valve 4499

O

Oil, Pneumatic Governor..... 4572
Oils, Heavy Fuel..... 4568
Operating Steam Pumps by Dense Air... 4599
Oxy-Acetylene Blowpipe in Safe Cracking 4619
Oxy-Acetylene Flame for Steel Cutting.. 4521

P

Painting, Sand-Blasting Before..... 4649
Panama Canal, Compressed Air on..... 4455
Panama Canal, Well Drills on..... 4435
Paris Subway, Caisson Work for..... 4655
Patents..... 4407, 4433, 4460, 4492, 4525, 4555, 4589, 4620, 4652, 4684
Peculiarities of Implosion..... 4660
Piles, Screw, for Tunnel Supports..... 4428
Pins, Manufacture of..... 4398
Pipe, Spiral for Oil Transmission..... 4650
Pipes, Air-Tight 4431
Piping an Air Gage..... 4673
Pit Sinking Through Frozen Quicksand. 4609
Pneumatic Ammunition Hoist..... 4683
" Ash Conveyor 4500
" Dispatch Tubes 4409
" Drills, Tests for..... 4633
" Everything 4611
" Hammer, Compound 4595
" Hammers, Test of..... 4491
" Ink Distribution 4532
" Logging Saw 4533
" Massage Machine 4553
" Micrometrics 4677
" Oil, Governor 4572
" Oscillating Valve Grinder... 4631
" Tires, How They Destroy Roads 4594
" Tools in Workshops..... 4585

Pneumatic Tools, What They Accomplish 4458
" Tubes in Philadelphia..... 4558
" Wrench 4587
Pohle Air Lift, A Typical..... 4591
Portable Acetylene Mine Lamp..... 4567
Portable Electric Driven Compressors.. 4406
Powder in Blasting..... 4512
Powder, Non-Freezing 4521
Power Economy in Return Air..... 4608
Power in Manufactures..... 4644
Power Prices 4388
Power Transmission, Losses in..... 4584
Prevention of Accidents to Workmen.. 4466
Prices of Power..... 4388
Priest, A Mechanic 4632
Problem of the Air Compressor..... 4676
Problem, The Fog Signal..... 4564
Production and Use of Compressed Air.. 4480
Production, Copper 4543
Protection from Wave Action..... 4424
Publicity Association, Technical..... 4449
Pumping, Return Air, at Chattanooga.. 4539
Pumping Sand by Compressed Air..... 4540
Pumping with Air Lift, Cost of..... 4488

Q

Quicksand, Pit Sinking Through Frozen 4609
Quick Work on a Big Fly-Wheel..... 4617

R

Railroad Service, Sand Blast in..... 4439
Railroad Shops, Compressed Air in.... 4582
Rand, The Gordon Drill on the..... 4544
Rateau's Non-Return Valve..... 4499
Rats in Mines..... 4683
Reach of Scientific Speculation..... 4599
Ready to Ship, Machinery..... 4552
Receivers, Free Air Content of..... 4551
Recent Practice in Tunnel Driving..... 4569
Reciprocating Air Compressors..... 4565
Record Blast, A..... 4617
Record Bore in Great Britain..... 4619
Record Vacuum, Makes a..... 4610
Records, Deepest Caisson..... 4632
Records, Two Engineering..... 4612
Refrigeration as a Supplementary Function 4656
Refrigeration, Compressed Air for..... 4516
Refrigeration on the Lusitania..... 4668
Register, An Earthquake..... 4486
Reheater, A Cheap..... 4633
Reheating Compressed Air in Mines.... 4432
Repairing a Locomotive Cylinder..... 4486
Rescue Apparatus, The Westphalia..... 4672
Rescue Work in Mines..... 4430
Rescue Work for Mines..... 4431
Responsibility, Engineering 4531
Return Air 4426
Return Air, Power Economy in..... 4608
Return Air Pumping at Chattanooga... 4539
Rider Ammonia Compressor..... 4563
Riveter, Compressed Air, A New..... 4543
Riveters, Compressive, Improvements in. 4574
Rivets, Compressed Air Draft for Heating 4610
Roads, How Pneumatic Tires Destroy.. 4594
Rock Crushing, Submerged..... 4608
Rock Drill and Air Compressor in Copper Mining 4606
Rock Drill, The Gordon-Hellman..... 4431
Rock Drill School, A..... 4431
Rock Drilling in Swedish Mines..... 4606
Russian Units 4650

S

Safe, Compressed Air to Make Ships.... 4515
Sales Night 4403
Salving Treasure from Sunken Ship.... 4618
Sand Blast, High and Low Pressure.... 4490
Sand Blast for Cleaning Steel Work... 4668
Sand Blast in Railroad Service..... 4439
Sand-Blasting Before Painting..... 4649
Sand Hog, Life and Work of..... 4657
Sand Hogs, The..... 4513
Sand, Pumping, by Compressed Air.... 4540
Saw, A Pneumatic Logging..... 4533
School, A Rock Drill..... 4431
Science of the Air, Ventilation..... 4592
Screw Piles for Tunnel Support..... 4428
Sergeant, Henry C., Death of..... 4399
Selling More Gas Than Made..... 4650
Shaft, A Deep 4617
Shaft Sinking by Caisson..... 4406
Sharpening and Gaging Drills..... 4491
Shell of Rock Drill, Wear of..... 4428
Ships, Compressed Air to Make Safe.... 4515
Shipyard, Compressed Air in..... 4514
Shredded Lead 4487
Shining of the Sun, The..... 4673
Signal, Fog 4431
Signaling, Submarine 4618
Single-Eccentric Meyer Valve Gear..... 4535
Size a Factor in Pneumatic Tire Design.. 4406
Soft Coal Burned Without Smoke..... 4641
South Africa, Compressed Air in..... 4669
Southern Water Powers..... 4561
Speculation, Reach of Scientific..... 4599
Spiral Pipe 4650
Starting Gas Engines..... 4642
Steam Consumption of Air Compressors 4669
Steam Hammers, Compressed Air for.. 4527
Steel, Bad, Atmospheric Humidity and.. 4550
Steel Cutting, Oxy-Acetylene Flame for. 4521
Steel, Tempering in Compressed Air.... 4388
Storage Battery, Windmill and..... 4661
Straight Line and Duplex Compressors.. 4389
Straight Line and Duplex Compressors.. 4418
Stranlcighite, Mackellorite and, Energy.. 4628
Strength of Air Tanks..... 4640
Submarine Signalling 4618, 4650
Submerged Rock Crushing..... 4608
Suction for Engineering Particulars..... 4639
Suez Canal Rock Breaking..... 4618
Suffocated by White Damp..... 4578
Sulphur in Louisiana..... 4491
Suppression of Dust in Mining..... 4534

T

Tamping Ties with Compressed Air..... 4682
Tanks, Strength of Air..... 4640
Tantalum, Hardness of..... 4587
Technical Publicity Association..... 4449
Temperatures of the Upper Air..... 4642
Temperatures, High 4553
Tempering Steel in Compressed Air.... 4388

Tester for Pneumatic Drills, A..... 4633
Tests of Reavell Compressor..... 4564
Thames Tunnel, A New..... 4638
Tight Pipes 4431
Tires, Pneumatic, Size a Factor..... 4406
Tool Clamp for Wheel Lathe..... 4537
Tougher Than Electric Drills..... 4512
Trade, Loss of Mexican..... 4432
Trade Publications 4403, 4429, 4457
4485, 4552, 4587, 4616, 4649, 4681
Training Coal Mine, For a..... 4520
Train, Moving, Wind Pressure on..... 4530
Transporting Fish, Aerating the Water.. 4454
Truck, Air Operated..... 4499
Tubes, Flow of Air in..4409, 4444, 4468, 4501
Tunnel and Mine Ventilation..... 4532
Tunnel, Cost of Small..... 4478
Tunnel Driving, Recent Practice in..... 4569
Tunnels, Screw Piles for..... 4428
Turbine Compressors 4650
Twice Counting Material..... 4431
Two-Stage Compression, Useless..... 4498
Typical Pohle Air Lift, A..... 4591

U

Unique Chimney Failure, A..... 4674
University of Michigan, Compressed Air in 4676
Useless Two-Stage Compression..... 4498

V

Vacuum Feather Puller, A..... 4546
Vacuum Makes a Record.....4610, 4645
Vacuums Different 4646, 4676
Valve Abuses 4635
Valve Gear, Single-Eccentric..... 4535
Valve Grinder, Pneumatic-Oscillating... 4631
Valve, Rateau's Non-Return..... 4499
Ventilation, Mine and Tunnel..... 4532
Ventilation, Science of the Air in..... 4592
Ventilation, Volume of Air Required... 4550
Vise, Air-Operated 4632
Volume of Air Required for Ventilation 4550

W

Water Powers 4519
Water Powers, Southern..... 4651
Waterproof Cement 4431
Wave Action, Protection from..... 4424
Wear of Rock Drill Shell..... 4428
Well Drills on Panama Canal..... 4435
Westphalia Rescue Apparatus..... 4672
What Pneumatic Tools Accomplish..... 4458
Whistling Buoy, A..... 4522
White Damp, Suffocated by..... 4578
Whitewashing a Motorman..... 4587
Windmill and Storage Battery..... 4661
Wind Pressure on a Moving Train..... 4530
Wind Pressures 4561
Working Conditions for Coal Cutters... 4522
Working of a Gas Engine..... 4682
Workshops, Pneumatic Tools in..... 4585
World's Largest Iron Mine..... 4639
Wrench, Pneumatic 4587

Y

Year's Work, Completing a..... 4455
Yelling Lighthouse, A..... 4501